R. E. Phelon Company Inc.

South Carolina Manufacturing Extension Partnership

R.E. Phelon Ignites Energy Conservation Program To Save Money

Client Profile:
R.E. Phelon Company is a developer and manufacturer of ignition systems for the lawn and garden industry. Founded in Aiken, South Carolina in 1978, R.E. Phelon makes ignition systems, including aluminum die castings, for a wide variety of equipment including lawn mowers, weed trimmers, and chainsaws. The company employs 300 people at the Aiken facility.

Situation:
R.E. Phelon's Aiken plant manager discovered the South Carolina Manufacturing Extension Partnership (SCMEP), a NIST MEP network affiliate, while reading a trade magazine and decided to call the organization. He felt his facility had unnecessary expenditures for both electricity and natural gas consumption used in production processes. He wanted to cut as much of the “fat” from his energy budgets as possible, with an eye toward increasing the energy efficiency of equipment and systems. He also suspected that compressed air leaks could be resulting in wasted energy, increased operating costs, and decreased production. These problems had been detected through excess expenditures on these line items in the budget.

Solution:
SCMEP, working under a U.S. Department of Energy grant that is part of the Industries of the Future program (see The Competitive Edge, Spring 2002 issue, “Improving Energy Use in Metal Casting Foundries”), was able to offer two cost-effective studies to R.E. Phelon. SCMEP completed an energy assessment and a compressed air leak survey in May and June 2002, which uncovered two areas in which R.E. Phelon could save energy and money.
As part of the assessment of energy consumption and expenditures, SCMEP reviewed past utility bills and noted there was one area that needed further investigation: power factor (PF) penalty charges. The recurring charge was unexplained, and needed further investigation. SCMEP discovered that the utility company was penalizing R.E. Phelon for its PF when it fell below 85 percent. Penalties added up to $10,468 over the observed time period. SCMEP traced the PF problem to a capacitor bank that was not being properly monitored and adjusted. SCMEP arranged to have the vendor trained, and R.E. Phelon eliminated the ongoing penalty charges.
Next, SCMEP conducted a compressed air survey using an Ultrasonic Detector, which recognizes high-frequency sounds associated with air leaks. The survey

traced the air lines from compressors to many different points in the plant where air leaks were occurring. SCMEP noted the facility was spending $12,750 annually in electrical costs associated with these leaks. Each leak was identified for plant maintenance engineers to repair in order of priority. SCMEP recommended several other initiatives to reduce compressed air waste. By implementing these initiatives, R.E. Phelon is saving $5,000 annually.

Results:
Repaired leaks to recover 209 cubic feet per minute (CFM), or 25 percent of the air being compressed in the system.
Recouped about $10,200 of the $12,750 lost through the leaks.
Saved $5,000 in additional energy expenses.
Saved $10,468 per period in power factor penalty charges.

Testimonial:
“The South Carolina Manufacturing Extension Partnership was able to help R.E. Phelon save money in the area noted during its energy assessment.”
Ray Henry, Plant Manager